Habitat: Hagonoy, Bulacan, Luzon, P. I.

Caught Oct. 2, 1901.

We have there one of the *sinensis* group, but evidently near *A. barbirostris* van der Wulp, the "round-ended" scales being undoubtedly the same as those described by Theobald for that species and apparently more numerous and wider spread on the wing than is indicated for that, while the differences in antennæ, palpi, wings and legs, especially the latter, are so marked as to throw it out of that species.

NOTE ON CULEX ANNULATUS.

By C. S. LUDLOW.

Culex annulatus Schrank has been heretofore regarded as of doubtful occurrence in America. Giles "Mosquitoes or Gnats," new edition, p. 392, reports it as "doubtfully recorded from America," and in the British Museum Monograph (Theobald) in the lists for localities it stands, p. 108, under "North America and Canada," "*Culex annulatus* Meigen (?)," while on p. 334 a quotation from Osten Sacken is given, "the following note occurs on *C. annulatus* 'Mexico, Cuidad in Durango, 8,100 feet (Forrer), a single female from Cuidad agrees very well with this species.'" I am therefore glad to be able to report that a single male, in fine condition, all the markings clean cut and well defined, was taken by me in my house, March 1, 1902, Fort Baker, Marin Co., Cal. It is probable that this was a hibernating specimen as no others of any sort were found for more than six weeks afterward, and this was taken in a particularly warm and sunny room.

NOTES ON CICINDELIDÆ OF LOUISIANA.

By CHARLES W. LENG, B.S.

These notes are mainly extracts from letters of Mr. George Coverdale, who has collected for the last two years at Vowell's Mill and at Covington. Vowell's Mill is in Nachitoches parish in the northwestern part of the state, and the vicinity is a vast stretch of uncleared woodland, the trees being principally pines and oaks. The woodland is interrupted by sandy fields planted in cotton and corn, and by

extensive swamps, heavily timbered with gigantic oaks, hickory, beech, maple, elm, ironwood, magnolia, poplar, sycamore, sweet gum, tupelo, sassafras, and, in the wetter portions, cypress. The species collected at Vowell's Mill are :

I.

Tetracha carolina and **T. virginica.**

Only a few specimens have so far been collected, and these were found running about in the hot midday sunshine of August in an old field grown up with grass and weeds, or running along the rows of cotton. They run rapidly, like a *Carabus* or *Cicindela*.

Cicindela unicolor.

This species begins to appear about February 10 and is abundant through March, April and May. It is not found during the summer months, but appears again in August and September. Mr. Coverdale is of the opinion that this so-called "fall brood" is all gone by the end of September. It is found only on white sand. The numerous specimens collected vary in the shade of color, but are all conspicuously green and unspotted. So far, at least, no specimen has been seen which had any of the spots of *rugifrons*. Compared with specimens from other localities these Louisiana specimens are more evidently punctate.

Cicindela sexguttata.

This species appears in March and is abundant during April and May and a few specimens are also found in June. It does not appear at all during the fall. Mr. Coverdale is quite positive on this point and speaks of this species as "single-brooded." It occurred especially on a woodland path, cut three years ago, and on the public highway near by, which has been cut since the war, or about forty years ago. This species is especially variable in Louisiana in coloring and in maculation. The color varies from bright brassy green to a pure grass-green, and the legs are often blue rather than green. Bluish reflections on the elytra are less common than in northern specimens. The maculation varies from the immaculate form, sometimes erroneously (?) called *violacea* to a single spot at apex, or a single spot on the disk (probably the *varians* of Ljungh), and so on to two, three or four spots on each elytron. The instability of this race of *sexguttata* is interesting in connection with the recent origin of its home and sug-

gests the possibility of the race being at present under the influence of some evolution process.

Cicindela denverensis.

This species is represented by a single specimen taken with the following species.

Cicindela ludoviciana.

This species appears in February and continues abundant during March and April. In May the number commences to diminish, and from June to September there are none. A second brood appears late in September and continues until December. It is partial to red rocky or gray colored soils. A certain amount of moisture in the soil seems to be necessary for the development and appearance of Cicindelæ in the imago state. Last autumn Mr. Coverdale traveled a certain road four times daily (Sundays excepted) for three months. The summer has been extremely hot and dry and not a single specimen of *Cicindela* was found. During the night of October first a good rain fell, the first for five months, and the next morning Mr. Coverdale found *C. ludoviciana*, *C. splendida* and *C. vulgaris* all freshly emerged and abundant, where before the rain not a single specimen was to be seen. This species is closely related to *C. splendida* and occurs over a considerable range at Vowell's Mill associated with it. Mr. Coverdale noticed in taking them that they seemed to occur at first in colonies, each form by itself. The first day of their appearance he found five specimens of *splendida* within ten or twelve feet of one another. Then he found *ludoviciana* only for a half mile without any *splendida*, then a few more *splendida* and so on all day. But after four or five days both forms occurred singly. This species is distinctly blue all over and varies only in the maculation.

Cicindela splendida.

Occurs with the preceding and has the same range and times of appearance. It varies in the intensity of the cupreous coloring, none of the specimens being as bright as more northern specimens, some specimens having an almost equal mixture of red and green. It varies also in the maculation, none of the specimens being heavily marked and some being immaculate.

Cicindela vulgaris.

This species is found from February to October, being scarce in midsummer. It is very abundant but rather local in the vicinity of

Vowell's Mill. The specimens received are all dark in coloring and suggest the tendency to partial obliteration of the markings observed in other southern specimens of this species.

Cicindela repanda.

This species is represented by a few specimens taken in June. Mr. Coverdale has not sent any particular information in reference to it.

Cicindela punctulata.

Occurs in June and is locally very abundant. The specimens are all very dark in color, nearly black, with the punctuation greenish and sometimes with white spots on the elytra.

Cicindela tortuosa.

This species is represented by a single specimen taken in August.

Cicindela cumatilis.

Occurs from June to August over a considerable range of country (fifty miles at least) mostly on red clay formation. Mr. Coverdale mentions this species occurring in the country school house, apparently interested in the crumbs of food dropped by the children at noon recess. It is very constant in respect of its beautiful blue coloring but quite variable in the extent of the white spots of the elytra.

II.

The species collected at Covington in June, 1902, are fewer in number. Covington is in St. Tammany Parish, in the southeastern part of the state, and near the northern shore of Lake Ponchartrain. The vicinity of Covington is flat and low; there are pine woods in which the trees are small and dense and the soil "crawfishy," soft when wet but hard as a rock when dry. At the time of Mr. Coverdale's visit, there had been no rain for five weeks, the vegetation was largely burnt up and dead, and the trees were covered with a fine impalpable white dust, which was also ankle deep on the roads. Nearby flows the Bogue Falaya River, and the best collecting was found along its sandy banks and in the woods immediately above them and on the sandbars exposed by the low water in the river. On the wet sands near the water's edge were *Cicindela tortuosa* and *repanda*, on the bars themselves *Cicindela Wapleri* and on the banks, partly in the shade of the trees, were *Cicindela abdominalis* and *punctulata*. Many Carabidæ were also taken on these sandbars and, in the stagnant pools between them and the banks, many Dytiscidæ.

To the south of Covington approaching the lake the character of the vegetation gradually changes. Palmettos begin to appear, then swamp timber such as water oaks, tupelo, magnolia, hackberry and cypress. In this region *punctulata* only occurred. The heat (June 15) was intense, the thermometer stood at 100° in the shade, and collecting Cicindelidæ on a snow white sandbar in the blazing sun was hard work.

Tetracha carolina.

This species was found in a low wet seepy place beside the river, running about on the wet sand, hiding under pieces of bark, rocks, logs, etc. Mr. Coverdale says it may be crepuscular in habit, but it is a "light sleeper" and can be found easily in the day-time by kicking pieces of bark, etc. It was also found on Mandeville Beach, Lake Pontchartrain, in the cracks of dried-out mud. Jumping on the mud made the beetles run out and pouring water down the cracks produced a good many. They run like a race horse and are difficult to capture. They bite and scratch even in the alcohol bottle. They also come to the electric lights.

Tetracha virginica.

A single specimen was taken at electric lights.

Cicindela repanda.

This species was taken on the sandbars of the Bogue Falaya River.

Cicindela punctulata.

This species was taken on the upper banks of the river and at various places in the woods and roads. The specimens sent are more metallic than the Vowell's Mill specimens. This species was also collected at electric lights.

Cicindela tortuosa.

This species was abundant on the sandbars of the Bogue Falaya River, living on the wet sand close to the river's edge. The specimens received are all very dark in color, but are probably stained by long immersion in alcohol.

Cicindela Wapleri.

The capture of this species was the main object of Mr. Coverdale's trip, and happily it was successfully attained. The clue was taken from Professor Wickham's "Habits of N. A. Cicindelidæ," where

the capture of this species by the late Hugo Soltau is recorded "on the sandy banks of a small stream near Covington." The Bogue Falaya seemed to be the stream intended, though it is of considerable size, and steamboats from New Orleans cross Lake Ponchartrain and ascend it twice a week. Mr. Coverdale first tried the left bank, but was turned back by barbed-wire fences and trespass signs and finally tried the right bank. The banks at this point are mostly steep, composed of pure white sand, and about every half mile there is a sandbar below the banks. The chief growth on the banks is birch, willow, cypress, sweet gum, tupelo, magnolia, sweet bay, laurel, pine, pecan, ash and various smaller bushes, and in places passage through the tangled vines and shrubs becomes almost impossible. At last, after three hours' search up the stream, he found a sandbar white as the driven snow, on which they were running everywhere, sometimes two or three being caught in the net at one sweep. They are hard to see, the white-haired ventral surface and white side markings making little contrast with the white sand. About two or three o'clock in the heat of the day, *C. Wapleri* gets in the shade under little bushes.

The specimens collected vary in size and in the extent of the white markings but not sufficiently to suggest any modification of the published descriptions.

Cicindela abdominalis.

This species occurs plentifully on the banks of the Bogue Falaya River above the water's edge and in the shade of the trees and bushes.

The following species, though not taken by Mr. Coverdale, have been reported from Louisiana, viz: *Pilatei*, *obsoleta*, *cursitans*, *severa*, *hamata* and *pamphila*.

NEW ORTHORRHAPHOUS DIPTERA FROM MEXICO AND TEXAS.

By D. W. COQUILLETT.

In the early part of the present year arrangements were made by Dr. L. O. Howard for identifying a large series of Diptera collected in Mexico and the southwestern portion of this country by Mr. C. H. T. Townsend, and the task of identifying this rich material was assigned to the writer. A comparatively small number of the species proved to be new to science, and as manuscript names of these will